DOCUMENT RESUME

ED 102 127 88 SP 008 908

AUTHOR	Earls, Neal
TITLE	Final Evaluation Report for Project HOPE.
INSTITUTION	Irwin County Schools, Ocilla, Ga.
SPONS AGENCY	Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
BUREAU NO	BR-077-1-70-033
PUB DATE	25 Sep 73
NOTE	69p.; For related documents, see SP 008 906 and 907
AVAILABLE FROM	Mrs. Martha F. Owens, Director, Health and Optimum Physical Education, P. O. Box 141, Ocilla, Georgia 31774 (No price quoted)
EDRS PRICE	MF-$0.76 HC Not Available from EDRS. PLUS POSTAGE
DESCRIPTORS	*Academic Achievement; Improvement; *Physical Education; *Physical Fitness; *Psychomotor Skills; *Self Concept
IDENTIFIERS	Elementary Secondary Education Act Title III; ESEA Title III; *Project HOPE

ABSTRACT

This document is a final evaluation report on Project HOPE (Health and Optimum Physical Education)--a Title III project to advance creativity in education--which has been conducted in grades 1-8 in schools in Ocilla, Georgia. The purposes of this program were: (a) to improve children's physical fitness, motor skills, and knowledge and understanding of physical education and (b) to contribute to improvement in academic achievement and self-concept. Students were tested during the 1971-72 and 1972-73 school years. A random sample of 15 percent of the student population of each sex in each grade level was given the written test in 1971-72. The sample was increased to 30 percent in 1972-73. All students received the physical performance test, and a random sample of 30 percent by sex in each grade level was used in 1971-72; 50 percent was used in 1972-73. Students in the sample demonstrated sizable and statistically significant improvement in both the areas of physical fitness and motor skills, in both sexes, and throughout the 8 grades. They did not, however, significantly improve their scores in the areas of knowledge and understanding of physical education, academic achievement, and self-concept, although some gain was noted. (PB)

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FINAL EVALUATION REPORT

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for

PROJECT HOPE

Health and Optimum Physical Education

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September 25, 1973

ESEA TITLE III, USOE PROJECT NO. 077-1-70-033

SP008 908

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INTRODUCTION

Project HOPE — Project HOPE, an acronym for Health and Optimum Physical Education, is an E.S.E.A. Title III project to advance creativity in education. The program of Project HOPE has been conducted in two schools of Ocilla, Georgia through contract with the Irwin County Board of Education. The program included activities for grades one through eight during the 1970-71 and 1971-72 school years. The 1972-73 program was limited to grades one through six due to changes in the organization of the Irwin County Schools. All students, with the exception of those in special education classes, received the programs of Project HOPE.

The Project was funded to accomplish the following:

I. To demonstrate the feasibility of a physical education program for rural children in a rural school system that will measurably improve children as to physical fitness, motor skills, knowledge and understanding of physical education, and contribute to improvement in academic achievement and self-concept.

II. To plan and implement school health services which will identify and increase the treatment of the following health problems: hearing and vision, dental,

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intestinal parasites, impetigo, conjunctivitis, and immunization for communicable diseases.

Program Objectives — The program objectives of Project HOPE to which this report has been directed are as follows:

1. Physical Fitness - Primary Students

As a result of participation in vigorous activities during the intervening period between the administration of pre- and post-tests, students in grades one through three will improve their fitness level by three "t" points as measured by the Washington State Elementary School Fitness Test on each of the following components:

Fitness Component	Test Item
Muscular power of leg extensor	Standing broad jump
Arm & shoulder girdle strength	Bench push-ups
Abdominal flexibility	Curl-ups
Agility	Squat jumps
Speed	Thirty yard dash

2. Physical Fitness - Elementary Students

During the interim period between pre- and post-tests, students in grades four through eight will improve their fitness levels by ten percentile points as measured by the American Association for Health, Physical Education, and Recreation's Youth Fitness

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Test on each of the following components:

Fitness Component	Test Item
Arm & shoulder girdle strength	Pull-ups for boys Flexed-arm hang for girls
Abdominal & hip flexor efficiency	Sit-ups
Agility	Shuttle run
Explosive power of leg extensors	Standing broad jump
Speed	Fifty yard dash
Coordination	Softball throw
Cardio-vascular efficiency	600 yard run/walk

3. General Motor Ability - Elementary Students

Following the pre-test and subsequent participation in varied diverse activities selected for their appropriateness to the development of movement efficiency, students in grades one through six will demonstrate improved general motor ability by three "t" points as measured by the second administration of selected items from the Minnesota Motor Performance Test.

Skill	Test Item
Throwing & catching	Wall pass
Eye-foot coordination - power	Soccer punt
Eye-foot coordination - accuracy	Soccer wall volley
Underhand striking - power	Volleyball service
Underhand throwing - accuracy	Pitching accuracy
Overhand movement - power	Overhand throw

4. Knowledge & Understanding in Physical Education - Elementary

From their experience in the comprehensive program, students in grades four through eight can effectively

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interpret the cognitive, affective, and psychomotor learnings to increase their knowledge and understanding of physical education as evidenced by a score equivalent to a ten percentile increase on the post-test administration of the AAHPER Cooperative Test in Physical Education.

5. Total Adjustment

After experiencing successes in activities requiring motor skills and achieving recognition for attaining high levels of physical fitness, students in grades one through eight will exhibit positive characteristics of total adjustment as evidenced by a score equivalent to a ten percentile increase on the post-test administration of the California Test of Personality.

6. Academic Achievement

Students in grade three through eight whose self-concept is enhanced after realizing successes in the psychomotor domain will demonstrate an improvement in their reading and mathematical abilities by raising their score on the Science Research Associates Achievement Tests an average of ten percentile points.

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EVALUATION METHODOLOGY

Sample — During the 1970-71 school year, a random sample of fifteen per cent of the student population of each sex in each grade level was drawn to receive the written tests. Concerned that the number of observations at each level might be too small to warrant widespread acceptance of the statistical inferences, Project HOPE increased the random sample for the 1971-72 and 1972-73 school years to thirty per cent.

Since all students received the physical performance tests, and due to the variability of such performance, a larger sample was utilized for the tests of physical fitness and motor skill. The random sample for the 1970-71 school year for physical performance variables was thirty per cent of the student population by sex in each grade level. The sampling was increased to fifty per cent for 1971-72 and 1972-73.

The increased sample sizes have provided data which leads to more tenable statements concerning the effects of the program than might otherwise have been possible.

Tables 1, 2 and 3 relate the distribution of the sample throughout the student population of the schools. Sample I referred to in the tables is the sample to which the written

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tests were administered. Sample II in the tables is the sample to which the physical performance tests were administered. There was some overlap between these samples.

Tables 1, 2 and 3 illustrate the larger population in the first grade, primarily due to the higher rate of retention of first grade students.

Table 4 provides the average age, height, and weight of the students by sex and grade. Students in Sample II were measured for height and weight during September of each school year. Age was determined as of December 31 of each school year.

Evaluation Schedule Table 5 illustrates the scheduling of the evaluative tools for the three years of Project HOPE. The written tests were administered in the school libraries. Selected items of the Minnesota Motor Performance Test were used to measure motor skill. The reading and mathematics total score of the SRA Achievement Series were utilized to indicate academic achievement.

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Table 1. 1970-71 Sample Distribution

Grade	Sex	*Sample I	Sample II	Population
One	Boys	21	40	104
One	Girls	17	34	107
Two	Boys	15	29	86
Two	Girls	15	29	84
Three	Boys	12	24	70
Three	Girls	16	30	79
Four	Boys	16	31	77
Four	Girls	11	23	72
Five	Boys	17	33	91
Five	Girls	12	23	75
Six	Boys	19	35	99
Six	Girls	8	19	58
Seven	Boys	19	35	112
Seven	Girls	13	25	90
Eight	Boys	15	29	84
Eight	Girls	11	21	75
Grand Total		237	460	1363

*Sample I represented about fifteen per cent of the population. This sample received all of the written tests. Since all students received the physical performance tests, a larger sample of about thirty per cent was utilized for the physical performance variables, Sample II.

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Table 2. 1971-72 Sample Distribution

Grade	Sex	*Sample I	Sample II	Population
One	Boys	33	57	110
One	Girls	30	50	99
Two	Boys	23	40	80
Two	Girls	24	37	73
Three	Boys	24	38	74
Three	Girls	23	39	78
Four	Boys	22	36	67
Four	Girls	22	36	74
Five	Boys	26	44	84
Five	Girls	26	43	82
Six	Boys	25	42	81
Six	Girls	25	37	89
Seven	Boys	26	46	87
Seven	Girls	21	32	61
Eight	Boys	27	53	102
Eight	Girls	28	44	100
Grand Total		405	674	1332

*Sample I comprised about a thirty per cent representation of the population. This sample received all of the written tests. Since all students received the physical performance tests, a larger sample of about fifty per cent was utilized for the physical performance variables, Sample II.

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Table 3. 1972-73 Sample Distribution

Grade	Sex	Sample* I	Sample* II	Population
One	Boys	26	43	86
One	Girls	22	37	76
Two	Boys	22	40	78
Two	Girls	24	38	82
Three	Boys	21	37	73
Three	Girls	22	37	73
Four	Boys	23	35	73
Four	Girls	22	35	71
Five	Boys	22	30	61
Five	Girls	24	37	76
Six	Boys	25	39	78
Six	Girls	23	38	76
Grand Total		277	446	903

*Sample I comprised about a thirty per cent representation of the population. This sample received all of the written tests. Since all students received the physical performance tests, a larger sample of about fifty per cent was utilized for the physical performance variables, Sample II.

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Table 4. Age, Height, Weight - Sample Means

Variable	Boys 1970	Boys 1971	Boys 1972	Girls 1970	Girls 1971	Girls 1972
Grade One	N=40	N=51	N=43	N=34	N=49	N=37
Age (years)	6.3	6.3	6.5	6.2	6.2	6.3
Height (inches)	47.3	47.6	47.5	47.3	47.3	47.3
Weight (pounds)	51.4	49.9	51.1	50.4	48.2	49.0
Grade Two	N=29	N=39	N=40	N=29	N=36	N=38
Age (years)	7.3	7.3	7.6	7.3	7.2	7.3
Height (inches)	49.6	50.0	50.0	49.3	49.3	49.3
Weight (pounds)	55.8	57.5	59.3	55.9	56.5	55.3
Grade Three	N=24	N=38	N=37	N=29	N=39	N=37
Age (years)	8.3	8.3	8.4	8.2	8.1	8.2
Height (inches)	51.1	52.0	51.9	51.3	52.4	51.4
Weight (pounds)	59.9	62.5	64.0	62.0	64.8	65.2
Grade Four	N=31	N=36	N=35	N=22	N=36	N=35
Age (years)	9.4	9.3	9.3	9.1	9.3	9.0
Height (inches)	54.9	54.1	53.2	54.1	53.8	52.9
Weight (pounds)	75.5	71.2	69.6	70.3	69.8	69.5
Grade Five	N=32	N=44	N=30	N=23	N=43	N=37
Age (years)	10.3	10.4	10.2	10.3	10.3	10.4
Height (inches)	55.6	55.6	55.2	56.5	57.3	55.8
Weight (pounds)	74.7	78.8	79.4	80.6	81.7	74.9
Grade Six	N=35	N=42	N=39	N=19	N=37	N=38
Age (years)	11.2	11.5	11.3	11.1	11.3	11.3
Height (inches)	57.1	58.0	57.8	58.3	59.8	59.0
Weight (pounds)	84.9	91.0	90.6	87.6	96.1	93.5
Grade Seven	N=35	N=44	N/A	N=25	N=32	N/A
Age (years)	12.4	12.5		12.4	12.2	
Height (inches)	60.7	60.8		61.3	60.9	
Weight (pounds)	102.3	101.2		100.6	101.6	
Grade Eight	N=29	N=49	N/A	N=21	N=44	N/A
Age (Years)	13.3	13.6		13.1	13.4	
Height (inches)	62.7	64.0		62.8	63.7	
Weight (pounds)	115.2	121.4		111.9	118.0	

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Table 5. Test Schedules[a]

Test Administered	Pre-Test Post-Test	Grades							
		1	2	3	4	5	6	7	8
Washington State Elementary School Fitness Test	Sep-Oct	X	X	X					
	Apr-May	X	X	X					
AAHPER Youth Physical Fitness Test	Sep-Oct				X	X	X	X	X
	Apr-May				X	X	X	X	X
Minnesota Motor "Skill" Test	October	X	X	X	X	X	X		
	May	X	X	X	X	X	X		
AAHPER Cooperative Physical Education Test	April				X	X	X	X	X
SRA Achievement Tests - Reading and Mathematics	Dec			X	X	X	X	X	X
California Test of Personality	Jan	X	X	X	X	X	X	X	X

[a]No tests were given to seventh and eighth grade students during the third year of Project HOPE, 1972-73, due to changes in the organization of the school system.

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Statistical Treatment Raw scores were used in the computation of statistics. The raw scores were punched into data processing cards for computer analysis. The services of the Center for Automation of Abraham Baldwin Agricultural College at Tifton, Georgia were utilized for statistical treatment of the data. The computer system used was a Univac 1108 Time/Sharing Exec-Mult-Processor.

Simple descriptive statistics were obtained by computer utilizing the MEANS procedure of the Statistical Analysis System (SAS). For each variable, the following statistics were printed: the number of values on which the calculations are based, mean, standard deviation, variance, the sum, corrected sum of squares, the smallest value, the largest value, and the coefficient of variation.

Tests for significance of difference between means were obtained through the ANOVA (analysis of variance) procedure of the SAS. The One-way Classification (Completely Random Design) was utilized with the computer output providing the following statistics in the analysis of variance tables for each source of variation: degrees of freedom, sum of squares, mean square. The effect tested for was that of the testing periods (sessions), pre- and post-test results for

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each of three years. Least Significant Differences (LSD's) at the .01 and .05 levels of significance were printed for each variable by grade and sex. The LSD statistic is the product of the appropriate value (5% or 1%) of 't' and the standard error of difference between the two means being tested for significance. The statistics from the F-test for significance were also printed. The LSD method was not applied to compare means unless the F-statistic was significant at the .05 level of confidence. Accordingly, it will be noted in the presentation of data that the LSD statistic was not reported for those variables which did not first pass the F-test. For each variable which passed the F-test at the .05 level of confidence, the means were tested for statistically significant differences by the criterion of the LSD for the .05 level of significance.

Correlations between cognitive test variables and variables of physical performance were computed using the BMD03D-Correlation With Item Deletion program of the Bio-Med Computer Programs. The output from the BMD03D program included: the mean, standard deviation and number of cases for each variable; and a correlation matrix which provided the correlation coefficient and the number of paired observations used in computing the coefficient. All coefficients of correlation were

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tested for significance at the .05 level of confidence by the appropriate degrees of freedom.

Tables have been formulated to facilitate comparisons and to illustrate changes in scores within each year (pre- to post-test) and from year to year.

Mean scores reported for 1970-71 in the tables are noted by a "1" for pre-test and a "2" for post-test, indicating that those means were for students at a particular grade level in that year. Mean scores indicated by a "3" for pre-test and a "4" for post-test are to note the mean scores by a new group of students attending that same grade level in 1971-72. Similarly, mean scores noted by a "5" or "6" are the means achieved by the next sample group to enter that particular grade in 1972-73. Thus, a representation of the change in status at each grade level is presented for the various tests throughout the three years. A longitudinal study was not designed for at the outset of testing schedule. Further, it was not feasible to use a control group in this project.

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PRESENTATION OF DATA, ANALYSIS AND FINDINGS

Introduction — Tables six through twenty-one present the data resulting from the analysis of variance. Each table contains all of the test results for the sample group of boys or girls in a particular grade.

The term "Session" used in the tables indicates the year the test was administered and whether the scores reflect a pre-test or a post-test administration. The following session codes are used to indicate the preceding: "1" scores from a pre-test in September-October of 1970-71, and the SRA Reading and Mathematics and California Test of Personality results which were obtained in December and January; "2" scores from a post-test in April-May of 1970-71, including the results of the AAHPER Cooperative Test of physical education knowledge and understanding; "3" as in code 1, except that the results are pre-test scores from the 1971-72 school year; "4" as in code 2, except corresponding post-test scores from 1971-72; "5" as in code 1, except corresponding pre-test scores from 1972-73; and "6" as in code 2, except corresponding post-test scores from 1972-73.

The columns labeled "Significant Difference" relate those session means which reflect a statistically significant

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improvement (P=.05) over earlier administrations of that test item.

The LSD (Least Significant Difference) statistic in parentheses under certain variables is the criterion measure by which a mean had to be improved to achieve statistical significance. For those variables which do not have an LSD presented, the LSD was not applied since the F-test was not first statistically significant.

The column heading of "%ile or T Points" indicates that the numbers in that column are the percentile points or "t" points assigned to the corresponding raw score means. Raw score means of the following variables were converted to "t" point values by the appropriate tables: bench push-ups, curl-ups, standing broad jump (grades 1-3), 30-yard dash, squat jumps, fitness composite, overhand throw, wall-pass, soccer punt, soccer volley, volleyball serve, pitching accuracy, and motor skill composite. Raw score means for all other variables were converted to the appropriate percentile point values.

Analysis of Means — Little change is reflected by the average scores of the sample students in grades one through eight on the SRA tests of reading achievement or mathematics (arithmetic) achievement. No statistically

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significant gains are indicated. One may note, however, a pattern of improvement from 1971-72 to 1972-73.

Examination of improvement on the California Test of Personality reveals statistically significant gains in four cases which may be noted in Table 9, Second Grade Girls, in Table 13, Fourth Grade Girls, and in Table 14, Fifth Grade Boys.

The results from administration of the AAHPER Cooperative Test of Physical Education (knowledge and understanding) reflect statistically significant improvement for fourth grade boys from 1970-71 to 1972-73 and for fourth grade girls from 1971-72 to 1972-73. While there was a consistent pattern of improvement in grades five through eight, the differences between the means were not statistically significant.

Scores from the Washington State Elementary School Fitness Test illustrate the significant improvement by primary grade students in physical fitness as measured by the five test items. Almost without exception, the mean scores on the physical fitness composite reflected statistically significant gains within each year and from year to year throughout the three program years.

Students in grades four through eight demonstrated consistent improvement on all test items of the AAHPER Youth

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Physical Fitness Test. Examination of all those test items for each grade reveals that among 70 mean scores for the 1970-71 school year: 21 means were below the twentieth percentile, 41 means were below the thirtieth percentile, 54 means were below the fortieth percentile, 61 means were below the fiftieth percentile, leaving only 9 cases from the 70 with a mean score above the fiftieth percentile. At the end of their two year program, 24 of the 28 seventh and eighth grade sample student means were above the fiftieth percentile on the national norms, and 14 of those means were above the sixtieth percentile. At the conclusion of their three year program in May of 1972, the sample students in grades four, five, and six had improved beyond the fiftieth percentile on 25 of the 42 physical fitness test items, with 15 of those means ranking above the sixtieth percentile nationally.

As noted at the bottom of the appropriate tables, there is not a sound basis for comparisons with the post-test scores on the 600 yard run-walk for fifth through eighth grade students of 1971. Construction on the grounds at their school resulted in considerable alteration of the testing station. The 1971-72 and 1972-73 post-test scores do reflect statistically significant improvements from the corresponding scores

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in the fall of 1970-71 on this test item.

Tables six through twenty-one also report the significant gains by students in grades one through six on the six selected test items of the Minnesota Motor Performance Test. This test was not administered in 1970-71. The raw scores from the fall administration of the test in 1971 were converted to develop a local T-Scale. All students in grades one through six were administered the test at that time. One can see in the tables that the sample mean scores did closely approximate the population means for that fall. The test was not continued for first grade students in 1972-73 as the results were variable and the test seemed too difficult and inappropriate to the program experiences of first grade students. Sample students in grades two through six followed a pattern of statistically significant improvement on the six test items as reflected by the gains in motor skill composite scores.

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Table 6. First Grade Boys

Test Item	Session	N	Mean	SD	%ile or T Points	Significant Difference
Personality	1	21	68.7	12.0	40	
(raw score)	3	32	63.4	9.9	30	
	5	26	64.4	8.1	30	
Bench	1	40	8.3	4.4	41	1 vs 3,4,5,6
Push-ups	2	40	9.9	4.6	43	2 vs 4,5,6
(number)	3	51	11.5	6.1	46	3 vs 5,6
(LSD=2.64)	4	56	13.9	6.7	48	4 vs 6
	5	43	14.7	7.7	50	5 vs 6
	6	41	18.3	7.6	54	
Curl-ups	1	40	14.4	11.2	55	1 vs 2
(number)	2	40	23.2	13.5	62	
(LSD=4.24)	3	51	6.4	6.0	46	3 vs 4,6
	4	56	12.9	9.4	53	
	5	43	10.3	10.5	51	5 vs 6
	6	41	15.8	10.2	56	
Standing	1	40	41.6	6.1	53	1 vs 6
Broad Jump	2	40	42.7	4.8	55	2 vs 6
(inches)	3	51	32.3	7.5	40	3 vs 4,5,6
(LSD=2.96)	4	56	43.5	8.7	56	4 vs 6
	5	43	37.7	7.4	47	5 vs 6
	6	41	46.7	6.7	60	
30-Yard Dash	1	40	6.55	.69	48	1 vs 2,4,6
(seconds)	2	40	6.24	.54	53	
(LSD=.290)	3	51	6.75	.97	47	3 vs 4,6
	4	56	6.10	.49	54	
	5	43	7.20	.83	39	5 vs 6
	6	41	6.13	.51	54	
Squat Jumps	1	39	7.3	4.0	36	1 vs 2,4,5
(number)	2	40	10.9	5.7	41	2 vs 4
(LSD=2.58)	3	51	6.7	4.0	34	3 vs 4,5
	4	56	14.0	7.3	47	
	5	43	11.0	9.4	43	
	6	41	7.2	4.9	36	

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Table 6. First Grade Boys (Continued)

Test Item	Session	N	Mean	SD	%ile or T Points	Significant Difference
Fitness Composite (totals from T-Scale) (LSD=14.3)	1	40	227	30		1 vs 2,4,6
	2	40	248	30		
	3	51	194	45		3 vs 4,5,6
	4	56	249	28		
	5	43	209	38		5 vs 6
	6	41	246	32		
Overhand Throw (feet) (LSD=5.01)	3	50	37.5	11.7	50	3 vs 4
	4	56	48.3	14.1	58	
Wall-Pass (total hits)	3	50	30.5	8.0	50	
	4	56	32.1	7.7	53	
Soccer Punt (feet) (LSD=3.26)	3	50	13.6	6.9	49	3 vs 4
	4	56	23.8	9.7	63	
Soccer Volley (total kicks) (LSD=2.02)	3	51	21.8	5.6	50	3 vs 4
	4	56	25.4	5.0	58	
Volleyball Serve (total feet) (LSD=11.3)	3	50	45.4	23.6	50	3 vs 4
	4	56	79.8	33.4	65	
Pitching Accuracy (total points) (LSD=4.51)	3	51	12.5	9.3	51	3 vs 4
	4	56	24.4	13.7	64	
Motor Skill Composite (totals from T-Scale)	4	56	362	56		

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Table 7. First Grade Girls

Test Item	Session	N	Mean	SD	%ile or T Points	Significant Difference
Personality	1	17	57.9	14.7	20	
(raw score)	3	29	64.4	11.7	30	
	5	22	63.9	9.5	30	
Bench	1	34	6.8	4.7	41	1 vs 3,4,5,6
Push-ups	2	33	7.7	4.4	42	2 vs 6
(number)	3	49	10.1	5.8	47	
(LSD=2.77)	4	45	10.3	7.9	47	
	5	37	9.8	5.7	46	
	6	36	12.3	7.3	50	
Curl-ups	1	34	13.8	11.8	54	1 vs 2
(number)	2	33	18.2	11.3	59	
(LSD=4.23)	3	49	5.2	5.9	43	3 vs 4,6
	4	45	15.8	9.0	56	
	5	37	7.7	6.5	46	5 vs 6
	6	36	15.8	12.1	56	
Standing	1	34	38.7	8.0	53	1 vs 6
Broad Jump	2	33	39.5	6.7	54	2 vs 6
(inches)	3	49	29.0	7.5	39	3 vs 4,6
(LSD=3.64)	4	45	41.6	9.0	56	
	5	37	34.4	9.8	47	5 vs 6
	6	36	44.7	7.4	61	
30-Yard Dash	1	34	7.04	.96	45	1 vs 4,6
(seconds)	2	33	6.75	.63	51	2 vs 6
(LSD=.379)	3	49	7.25	1.05	43	3 vs 4,6
	4	45	6.57	.66	52	
	5	37	7.44	.98	40	5 vs 6
	6	36	6.37	.64	55	
Squat Jumps	1	34	7.3	4.5	36	1 vs 2,4
(number)	2	33	10.7	5.4	41	
(LSD=2.30)	3	49	5.7	4.9	32	3 vs 4
	4	45	10.5	6.6	41	
	5	37	5.3	4.2	32	
	6	36	5.8	4.5	32	

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Table 7. First Grade Girls (Continued)

Test Item	Session	N	Mean	SD	%ile or T Points	Significant Difference
Fitness Composite (totals from T-Scale) (LSD=17.0)	1	34	219	34		1 vs 2,4,6
	2	33	238	34		
	3	48	181	46		3 vs 4,6
	4	45	245	31		
	5	37	194	41		5 vs 6
	6	36	242	39		
Overhand Throw (feet) (LSD=3.08)	3	48	20.6	6.2	49	3 vs 4
	4	44	27.6	8.6	60	
Wall-Pass (total hits)	3	49	26.9	6.4	47	
	4	45	29.0	7.5	51	
Soccer Punt (feet) (LSD=2.20)	3	49	4.9	5.0	47	3 vs 4
	4	43	14.4	5.7	70	
Soccer Volley (total kicks) (LSD=1.99)	3	47	20.6	4.1	51	3 vs 4
	4	45	23.0	5.5	59	
Volleyball Serve (total feet) (LSD-8.66)	3	45	35.0	17.7	48	3 vs 4
	4	45	56.9	23.3	59	
Pitching Accuracy (total points) (LSD=2.62)	3	49	2.7	6.0	47	3 vs 4
	4	45	10.0	6.8	60	
Motor Skill Composite	4	44	357	47		

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Table 8. Second Grade Boys

Test Item	Session	N	Mean	SD	%ile or T Points	Significant Difference
Personality (raw score)	1	15	65.5	10.9	30	
	3	24	64.0	8.6	30	
	5	22	63.0	12.8	30	
Bench Push-ups (number) (LSD=3.74)	1	29	5.4	5.3	34	1 vs 3,4,5,6
	2	29	9.1	5.4	41	2 vs 3,6
	3	39	17.7	10.2	51	
	4	38	11.8	9.6	44	4 vs 6
	5	40	12.2	5.8	46	5 vs 6
	6	39	18.8	9.2	52	
Curl-ups (number) (LSD=4.56)	1	29	17.5	11.3	53	1 vs 2
	2	29	26.2	11.1	60	
	3	39	11.5	7.9	48	3 vs 4,6
	4	38	16.4	9.6	52	
	5	40	12.3	7.0	49	5 vs 6
	6	39	21.5	11.8	57	
Standing Broad Jump (inches) (LSD=3.21)	1	29	49.3	7.3	57	1 vs 6
	2	29	50.2	7.4	59	2 vs 6
	3	39	35.8	5.7	38	3 vs 4,5,6
	4	38	50.7	6.6	59	4 vs 6
	5	40	47.7	7.3	55	5 vs 6
	6	39	54.8	7.3	65	
30-Yard Dash (seconds) (LSD=.266)	1	29	6.47	.68	46	1 vs 2,3,4,6
	2	29	5.99	.53	50	2 vs 6
	3	38	6.19	.46	48	3 vs 4,6
	4	38	5.92	.60	50	4 vs 6
	5	40	6.40	.63	46	5 vs 6
	6	39	5.69	.53	57	
Squat Jumps (number) (LSD=3.29)	1	29	11.1	6.7	40	1 vs 2,4
	2	29	16.9	7.6	46	
	3	39	13.1	9.6	42	
	4	38	15.1	6.5	45	
	5	40	10.7	5.9	38	
	6	39	9.9	5.4	36	

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Table 8. Second Grade Boys (Continued)

Test Item	Session	N	Mean	SD	%ile or T Points	Significant Difference
Fitness	1	29	217	38		1 vs 2,4,6
Composite	2	29	249	32		
(totals from	3	39	216	31		3 vs 4,6
T-Scale)	4	38	241	30		
(LSD=15.4)	5	40	220	38		5 vs 6
	6	39	255	29		
Overhand Throw	3	38	45.2	10.4	49	3 vs 4,5,6
(feet)	4	38	56.1	13.0	57	4 vs 6
(LSD=6.63)	5	40	52.5	15.7	54	5 vs 6
	6	39	67.8	18.7	65	
Wall-Pass	3	38	33.5	8.5	64	3 vs 4,5,6
(total hits)	4	38	39.1	7.9	72	4 vs 6
(LSD=3.98)	5	40	38.4	9.1	71	5 vs 6
	6	39	43.8	10.0	78	
Soccer Punt	3	39	22.5	9.6	52	3 vs 4,6
(feet)	4	38	28.7	10.1	58	
(LSD=4.60)	5	40	24.7	9.0	54	5 vs 6
	6	39	29.3	12.2	59	
Soccer Volley	3	39	27.2	5.4	51	3 vs 5,6
(total kicks,	4	38	26.9	6.0	49	4 vs 5,6
(LSD=3.07)	5	40	32.6	7.3	59	5 vs 6
	6	39	38.7	8.4	69	
Volleyball Serve	3	38	59	27	51	3 vs 4,5,6
(total feet)	4	38	98	29	64	4 vs 6
(LSD=15.4)	5	40	92	30	62	5 vs 6
	6	39	117	47	71	
Pitching	3	38	19.8	9.1	47	3 vs 4
Accuracy	4	38	30.9	14.6	56	
(total points)	5	40	28.3	14.0	54	
(LSD=6.00)	6	39	31.2	15.0	56	
Motor Skill	4	38	358	42		
Composite	5	40	357	53		5 vs 6
(totals from	6	39	400	58		
T-Scale)						
(LSD=22.9)						

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Table 9. Second Grade Girls

Test Item	Session	N	Mean	SD	%ile or T Points	Significant Difference
Personality (raw score)	1	15	60.9	8.5	30	1 vs 5
	3	24	62.8	8.7	30	
	5	24	67.9	8.9	40	
Bench Push-ups (number) (LSD=2.64)	1	29	7.5	5.9	42	1 vs 3,6
	2	29	9.6	5.1	45	
	3	36	10.2	4.9	46	
	4	37	8.1	5.0	44	4 vs 6
	5	38	9.3	6.8	45	
	6	38	11.7	5.6	48	
Curl-ups (number) (LSD=4.18)	1	29	18.5	11.7	55	
	2	29	21.9	11.3	58	
	3	36	9.9	7.6	46	3 vs 4
	4	37	14.7	9.4	52	
	5	38	8.6	6.0	44	
	6	38	11.3	7.1	48	
Standing Broad Jump (inches) (LSD=3.40)	1	29	43.2	8.6	53	1 vs 2,4,6
	2	29	49.2	6.8	61	
	3	36	35.3	7.2	41	3 vs 4,5,6
	4	37	47.0	7.0	58	
	5	38	43.4	7.0	53	5 vs 6
	6	38	48.3	6.9	60	
30-Yard Dash (seconds) (LSD=.268)	1	29	6.43	.68	49	1 vs 4,6
	2	29	6.29	.58	51	
	3	36	6.57	.50	46	3 vs 4,6
	4	37	6.07	.40	54	
	5	38	7.17	.69	36	5 vs 6
	6	38	6.03	.53	54	
Squat Jumps (number) (LSD=2.16)	1	29	12.0	4.6	40	1 vs 4
	2	29	13.4	4.7	42	
	3	36	11.9	4.5	39	3 vs 4
	4	37	14.9	6.3	43	
	5	38	7.4	3.0	33	
	6	38	5.8	3.6	30	

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Table 9. Second Grade Girls (Continued)

Test Item	Session	N	Mean	SD	%ile or T Points	Significant Difference
Fitness	1	29	230	31		1 vs 2,4
Composite	2	29	250	28		
(totals from	3	36	213	35		3 vs 4,6
T-Scale)	4	37	246	27		
(LSD=13.4)	5	38	204	28		5 vs 6
	6	38	234	20		
Overhand Throw	3	32	27.4	10.9	48	3 vs 4,6
(feet)	4	37	33.7	12.6	54	
(LSD=5.52)	5	38	29.0	10.6	50	
	6	38	34.0	12.9	53	
Wall-Pass	3	36	33.8	5.9	49	3 vs 4,6
(total hits)	4	37	35.2	5.5	52	4 vs 6
(LSD=2.73)	5	38	30.8	5.8	45	5 vs 6
	6	38	40.4	6.6	59	
Soccer Punt	3	32	10.9	4.8	50	3 vs 4,6
(feet)	4	37	15.2	6.2	58	
(LSD=3.22)	5	38	12.8	7.5	53	5 vs 6
	6	38	18.2	8.4	63	
Soccer Volley	3	35	26.0	6.9	50	3 vs 6
(total kicks)	4	37	25.4	5.2	48	
(LSD=2.74)	5	38	26.3	5.2	50	5 vs 6
	6	38	32.5	6.4	58	
Volleyball Serve	3	29	42	21	48	3 vs 4,5,6
(total feet)	4	37	74	22	63	
(LSD=10.8)	5	38	58	22	56	5 vs 6
	6	38	78	27	65	
Pitching	3	33	9.9	7.2	48	3 vs 4
Accuracy	4	37	16.1	8.7	56	
(total points)	5	38	11.8	9.5	50	
(LSD=3.98)	6	38	11.1	8.8	50	

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Table 9. Second Grade Girls (Continued)

Test Item	Session	N	Mean	SD	%ile or T Points	Significant Difference
Motor Skill Composite (totals from T-Scale) (LSD=21.3)	4	37	331	42		
	5	38	306	37		5 vs 6
	6	38	346	58		

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Table 10. Third Grade Boys

Test Item	Session	N	Mean	SD	%ile or T Points	Significant Difference
Reading (raw score)	1	11	37.3	13.7	20	
	3	24	34.4	10.5	17	
	5	21	38.7	14.7	24	
Mathematics (raw score)	1	11	43.9	20.6	24	
	3	24	43.5	12.6	24	
	5	21	44.8	17.8	24	
Personality (raw score)	1	12	63.2	10.2	30	
	3	24	66.0	10.7	40	
	5	21	67.1	14.1	40	
Bench Push-ups (number) (LSD=5.09)	1	24	9.0	5.7	40	1 vs 2,3,4,5,6
	2	24	15.2	9.4	48	2 vs 6
	3	38	17.3	9.9	50	3 vs 6
	4	37	14.1	8.5	47	4 vs 6
	5	37	17.8	11.9	50	5 vs 6
	6	33	23.2	13.5	55	
Curl-ups (number) (LSD=5.80)	1	24	17.2	8.8	51	1 vs 2,6
	2	24	30.4	13.2	59	
	3	38	16.5	10.0	50	3 vs 4,6
	4	37	22.3	10.9	54	
	5	37	18.0	12.6	51	5 vs 6
	6	33	26.8	14.0	56	
Standing Broad Jump (inches) (LSD=3.38)	1	24	47.9	6.7	50	1 vs 2,4,6
	2	24	51.7	5.2	55	2 vs 6
	3	38	43.2	8.0	44	3 vs 4,5,6
	4	37	55.0	7.4	60	
	5	37	51.1	6.1	55	5 vs 6
	6	33	55.7	6.6	60	
30-Yard Dash (seconds) (LSD=.238)	1	24	5.87	.39	50	1 vs 4,6
	2	24	5.78	.49	51	2 vs 6
	3	37	5.77	.54	51	3 vs 6
	4	37	5.59	.54	52	
	5	37	6.25	.49	40	5 vs 6
	6	33	5.37	.36	56	

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Table 10. Third Grade Boys (Continued)

Test Item	Session	N	Mean	SD	%ile or T Points	Significant Difference
Squat Jumps (number) (LSD=3.58)	1	24	11.9	5.5	39	1 vs 2,4
	2	24	18.5	8.2	46	
	3	38	14.6	5.6	42	
	4	37	16.8	10.0	44	
	5	37	9.6	5.6	35	
	6	33	10.4	7.4	37	
Fitness Composite (totals from T-Scale) (LSD=17.7)	1	24	222	28		1 vs 2,4,6
	2	24	251	23		
	3	38	225	35		3 vs 4,6
	4	37	250	30		
	5	37	224	29		5 vs 6
	6	33	265	56		
Overhand Throw (feet) (LSD=6.90)	3	37	59.1	15.9	49	3 vs 4,6
	4	37	69.5	17.9	55	
	5	37	59.8	11.9	49	5 vs 6
	6	32	70.2	12.4	56	
Wall-Pass (total hits) (LSD=4.89)	3	36	42.7	9.7	51	3 vs 6
	4	37	47.1	12.1	55	4 vs 6
	5	37	35.1	10.3	45	5 vs 6
	6	32	52.1	9.5	59	
Soccer Punt (feet) (LSD=6.06)	3	34	29.2	13.3	50	3 vs 4
	4	37	36.2	11.9	55	
	5	37	31.5	12.3	52	
	6	33	35.2	13.9	55	
Soccer Volley (total kicks) (LSD=3.31)	3	37	29.6	6.6	48	3 vs 5,6
	4	37	31.3	6.2	51	4 vs 6
	5	37	33.5	9.2	53	5 vs 6
	6	32	37.5	5.6	59	
Volleyball Serve (total feet) (LSD=18.2)	3	35	74	38	49	3 vs 4,5,6
	4	37	129	37	64	
	5	37	107	39	58	5 vs 6
	6	33	135	42	65	

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Table 10. Third Grade Boys (Continued)

Test Item	Session	N	Mean	SD	%ile or T Points	Significant Difference
Pitching	3	35	29.0	12.1	50	
Accuracy	4	37	32.1	13.5	52	
(total points)	5	37	33.6	11.9	53	
(LSD=6.08)	6	32	34.0	14.0	53	
Motor Skill	4	37	333	43		
Composite	5	37	311	35		5 vs 6
(totals from T-Scale)	6	32	345	37		
(LSD=18.1)						

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Table 11. Third Grade Girls

Test Item	Session	N	Mean	SD	%ile or T Points	Significant Difference
Reading (raw score)	1	16	40.9	13.4	28	
	3	23	44.6	9.1	31	
	5	23	46.6	12.4	44	
Mathematics (raw score)	1	16	47.1	14.1	34	
	3	23	50.3	11.7	39	
	5	23	46.2	14.8	29	
Personality (raw score)	1	16	69.4	8.7	40	
	3	23	65.2	9.7	40	
	5	22	69.8	10.5	40	
Bench Push-ups (number) (LSD=3.44)	1	29	5.0	5.6	40	1 vs 2,3,4,5,6
	2	30	9.8	6.4	45	2 vs 6
	3	39	12.2	6.7	49	
	4	35	12.7	10.3	49	
	5	37	11.4	5.4	48	
	6	30	13.9	6.7	50	
Curl-ups (number) (LSD=4.74)	1	29	14.2	8.2	49	1 vs 2,4,6
	2	30	21.9	10.6	55	
	3	39	16.1	10.4	51	
	4	35	20.7	10.3	55	
	5	37	10.6	7.9	45	5 vs 6
	6	30	18.3	10.8	52	
Standing Broad Jump (inches) (LSD=3.24)	1	29	42.3	6.6	47	1 vs 2,4,5,6
	2	30	47.8	6.1	53	
	3	39	36.5	7.6	39	3 vs 4,5,6
	4	35	48.5	7.6	55	
	5	37	47.2	6.1	53	5 vs 6
	6	30	50.5	5.4	57	
30-Yard Dash (seconds) (LSD=.247)	1	29	6.27	.50	46	1 vs 2,4,6
	2	30	5.87	.49	52	
	3	39	6.17	.52	48	3 vs 4,6
	4	35	5.76	.40	53	
	5	37	6.59	.61	40	5 vs 6
	6	30	5.89	.49	52	

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Table 11. Third Grade Girls (Continued)

Test Item	Session	N	Mean	SD	%ile or T Points	Significant Difference
Squat Jumps	1	29	12.4	6.5	39	1 vs 2
(number)	2	30	17.8	5.3	45	
(LSD=2.74)	3	38	10.8	6.3	37	3 vs 4
	4	35	14.4	7.1	42	
	5	37	7.4	3.8	32	
	6	30	8.0	3.8	34	
Fitness	1	29	211	33		1 vs 2,4,6
Composite	2	30	249	30		
(totals from	3	39	215	39		3 vs 4,6
T-Scale)	4	35	248	29		
(LSD=15.5)	5	37	213	31		5 vs 6
	6	30	240	28		
Overhand Throw	3	39	36.7	13.4	50	3 vs 4
(feet)	4	35	45.6	12.5	56	
(LSD=6.54)	5	37	35.1	15.1	49	
	6	30	39.4	14.2	52	
Wall-Pass	3	38	35.9	9.6	48	3 vs 4,6
(total hits)	4	35	42.5	7.4	55	4 vs 6
(LSD=3.81)	5	37	34.9	6.7	47	5 vs 6
	6	30	46.5	8.1	60	
Soccer Punt	3	37	16.8	10.0	51	3 vs 4
(feet)	4	35	22.1	7.7	57	
(LSD=4.73)	5	37	18.0	10.8	53	
	6	30	18.4	11.3	53	
Soccer Volley	3	38	25.6	5.7	50	3 vs 4,5,6
(total kicks)	4	35	28.8	5.5	55	4 vs 6
(LSD=2.85)	5	37	30.0	6.3	58	5 vs 6
	6	30	33.4	6.6	63	
Volleyball Serve	3	38	61	27	47	3 vs 4,5,6
(total feet)	4	35	103	29	59	
(LSD=13.3)	5	37	76	22	51	
	6	30	86	34	54	

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Table 11. Third Grade Girls (Continued)

Test Item	Session	N	Mean	SD	%ile or T Points	Significant Difference
Pitching	3	38	13.6	9.6	48	3 vs 4
Accuracy	4	35	21.9	10.7	69	
(total points)	5	37	21.9	10.6	69	
(LSD=5.17)	6	30	18.4	13.1	61	
Motor Skill	4	35	352	44		
Composite	5	37	328	46		
(totals from T-Scale)	6	30	343	52		

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Table 12. Fourth Grade Boys

Test Item	Session	N	Mean	SD	%ile or T Points	Significant Difference
Reading (raw score)	1	16	39.3	16.5	11	
	3	22	39.6	14.5	11	
	5	23	40.0	14.0	11	
Mathematics (raw score)	1	16	58.2	29.3	12	
	3	22	61.8	24.0	15	
	5	23	61.2	21.9	15	
Personality (raw score)	1	16	88.8	16.1	20	
	3	22	85.2	15.9	20	
	5	23	95.7	18.6	30	
Physical Education (raw score) (LSD=4.70)	2	16	20.6	6.7	9	2 vs 6
	4	22	24.7	7.7	18	
	6	25	28.0	8.1	29	
Pull-ups (number) (LSD=1.18)	1	31	2.5	3.3	49	1 vs 4
	2	31	2.0	2.4	45	2 vs 4
	3	36	2.4	2.1	48	3 vs 4
	4	35	3.7	2.6	65	
	5	35	2.1	2.0	50	
	6	36	2.0	2.2	50	
Sit-ups (number) (LSD=12.1)	1	31	25.2	11.1	25	1 vs 2,4,6
	2	31	46.0	25.4	53	2 vs 4,6
	3	36	31.5	22.9	37	3 vs 4,6
	4	35	71.9	31.4	78	
	5	35	28.3	19.7	30	5 vs 6
	6	36	63.5	33.7	74	
Shuttle Run (seconds) (LSD=.384)	1	31	12.9	1.16	8	1 vs 2,3,4,5,6
	2	31	12.0	.86	25	2 vs 4,5,6
	3	36	11.7	.72	32	3 vs 4,6
	4	35	11.3	.69	47	
	5	35	11.4	.63	45	
	6	36	11.1	.69	53	

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Table 12. Fourth Grade Boys (Continued)

Test Item	Session	N	Mean	SD	%ile or T Points	Significant Difference
Standing Broad Jump (inches) (LSD=3.72)	1	31	52.1	7.1	15	1 vs 2,4,6
	2	31	57.5	8.0	33	2 vs 4
	3	36	46.6	8.0	4	3 vs 4,5,6
	4	35	61.5	7.5	57	
	5	35	53.8	7.3	24	5 vs 6
	6	36	57.3	8.6	33	
50-Yard Dash (seconds) (LSD=.385)	1	31	9.19	.69	13	1 vs 4,5,6
	2	31	8.92	1.06	22	2 vs 4,6
	3	36	9.87	.71	21	3 vs 4
	4	35	8.47	.89	36	
	5	35	8.78	.66	30	
	6	36	8.50	.77	40	
Softball Throw (feet) (LSD=9.26)	1	31	79	17.1	23	
	2	31	81	19.8	25	
	3	36	74	15.3	16	3 vs 4
	4	35	86	21.5	32	
	5	35	77	21.2	19	
	6	36	82	20.2	26	
600 Yard Run-Walk (seconds) (LSD=12.2)	1	31	182	24.8	14	1 vs 4,5,6
	2	30	173	38.0	21	2 vs 4,5,6
	3	36	178	21.6	17	3 vs 4,5,6
	4	35	159	30.7	40	
	5	35	159	16.6	39	
	6	36	149	17.5	56	
Overhand Throw (feet) (LSD=9.19)	3	36	74	15.3	50	3 vs 4
	4	35	86	21.5	58	
	5	35	77	21.2	52	
	6	36	82	20.2	56	
Wall-Pass (total hits) (LSD=6.63)	3	36	56.1	12.5	51	3 vs 6
	4	35	59.3	12.6	53	4 vs 6
	5	35	56.9	15.6	51	5 vs 6
	6	35	66.1	15.2	58	

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Table 12. Fourth Grade Boys (Continued)

Test Item	Session	N	Mean	SD	%ile or T Points	Significant Difference
Soccer Punt (feet) (LSD=5.94)	3	36	39.2	12.4	51	3 vs 4,6
	4	35	49.9	14.1	58	
	5	35	39.6	11.5	51	5 vs 6
	6	36	51.6	12.8	59	
Soccer Volley (total kicks) (LSD=4.53)	3	35	36.7	8.1	52	3 vs 4
	4	35	41.5	10.7	57	
	5	35	34.8	10.6	49	
	6	36	39.2	8.7	54	
Volleyball Serve (total feet) (LSD=21.9)	3	35	128	42.5	51	3 vs 4,6
	4	35	170	54.7	62	
	5	35	143	41.9	55	5 vs 6
	6	36	165	45.4	60	
Pitching Accuracy (total points) (LSD=6.18)	3	36	38.8	13.4	52	3 vs 4,5,6
	4	35	46.0	15.8	57	4 vs 6
	5	35	52.0	11.8	61	
	6	36	56.7	11.7	64	
Motor Skill Composite (totals from T-Scale) (LSD=23.8)	4	35	346	54		
	5	35	318	49		5 vs 6
	6	35	353	47		

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Table 13. Fourth Grade Girls

Test Item	Session	N	Mean	SD	%ile or T Points	Significant Difference
Reading	1	11	44.5	14.2	18	
(raw score)	3	22	43.9	11.1	18	
	5	22	48.5	11.8	28	
Mathematics	1	11	65.6	18.2	21	
(raw score)	3	22	59.6	17.8	15	
	5	22	64.4	19.0	18	
Personality	1	11	99.8	18.7	30	
(raw score)	3	22	83.5	16.7	20	3 vs 5
(LSD=12.2)	5	21	99.7	19.5	30	
Physical	2	11	24.5	8.5	18	
Education	4	21	20.0	4.6	9	4 vs 6
(raw score)	6	21	28.0	8.8	29	
(LSD=4.92)						
Flexed-Arm	1	22	3.3	3.6	26	1 vs 4,5,6
Hang	2	22	4.1	4.7	30	2 vs 4
(seconds)	3	36	5.4	7.2	38	3 vs 4
(LSD=4.29)	4	35	14.4	14.0	73	
	5	35	8.2	7.9	53	
	6	33	8.3	7.2	53	
Sit-ups	1	22	16.4	7.4	21	1 vs 2,4,5,6
(number)	2	22	31.6	12.7	51	2 vs 4
(LSD=6.77)	3	36	19.9	11.5	24	3 vs 4,6
	4	35	40.3	14.0	63	
	5	35	25.9	15.5	38	5 vs 6
	6	33	34.9	16.2	58	
Shuttle Run	1	22	14.8	1.74	4	1 vs 2,3,4,5,6
(seconds)	2	22	12.7	.86	22	2 vs 3,4,5,6
(LSD=.511)	3	36	12.0	.90	45	3 vs 6
	4	35	12.0	1.02	45	4 vs 6
	5	35	12.1	.76	45	5 vs 6
	6	33	11.3	.82	67	

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Table 13. Fourth Grade Girls (Continued)

Test Item	Session	N	Mean	SD	%ile or T Points	Significant Difference
Standing	1	22	50.4	7.6	27	
Broad Jump	2	22	53.7	7.3	43	
(inches)	3	36	45.2	7.4	10	3 vs 4,6
(LSD=3.84)	4	35	54.2	8.6	45	
	5	35	49.9	6.7	25	5 vs 6
	6	33	53.9	8.0	44	
50-Yard Dash	1	22	9.98	1.27	7	1 vs 2,3,4,5,6
(seconds)	2	22	9.00	.80	25	2 vs 4
(LSD=.438)	3	36	8.89	.74	35	
	4	35	8.51	.64	49	
	5	35	9.33	.98	18	
	6	33	9.01	.83	25	
Softball Throw	1	22	44	16.0	30	
(feet)	2	22	52	16.9	54	
	3	36	48	15.4	45	
	4	35	52	16.5	55	
	5	35	47	16.5	43	
	6	33	50	18.3	50	
600 Yard	1	22	195	24.4	18	1 vs 2,4,6
Run-Walk	2	22	178	19.4	37	2 vs 4
(seconds)	3	36	192	29.9	21	3 vs 4,6
(LSD=13.6)	4	35	164	24.1	56	
	5	35	196	36.0	18	5 vs 6
	6	33	171	21.1	44	
Overhand Throw	3	36	48.3	15.4	51	
(feet)	4	35	52.2	16.5	54	
	5	35	46.5	16.5	49	
	6	33	49.8	15.3	52	
Wall-Pass	3	35	47.7	8.2	52	3 vs 6
(total hits)	4	35	48.6	12.0	54	4 vs 6
(LSD=5.20)	5	35	49.5	11.0	54	5 vs 6
	6	33	56.9	12.4	62	

Table 13. Fourth Grade Girls (Continued)

Test Item	Session	N	Mean	SD	%ile or T Points	Significant Difference
Soccer Punt (feet) (LSD=4.31)	3	35	23.2	9.0	51	3 vs 4,6
	4	35	28.9	9.1	56	
	5	35	23.5	9.9	51	5 vs 6
	6	33	28.5	8.5	55	
Soccer Volley (total kicks) (LSD=3.62)	3	34	31.2	6.1	53	3 vs 4,6
	4	34	35.5	6.7	62	
	5	35	31.7	7.4	54	5 vs 6
	6	33	39.0	9.6	66	
Volleyball Serve (total feet) (LSD=16.8)	3	36	80	29.6	50	3 vs 4,5,6
	4	34	116	38.3	62	
	5	35	117	36.3	62	
	6	33	127	37.6	65	
Pitching Accuracy (total points) (LSD=5.46)	3	30	22.7	8.5	51	3 vs 4,5,6
	4	35	29.1	12.8	57	4 vs 5,6
	5	35	37.3	11.2	65	5 vs 6
	6	33	43.8	11.5	71	
Motor Skill Composite (totals from T-Scale) (LSD=23.9)	4	33	340	51		4 vs 6
	5	35	337	49		5 vs 6
	6	33	369	49		

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Table 14. Fifth Grade Boys

Test Item	Session	N	Mean	SD	%ile or T Points	Significant Difference
Reading	1	16	31.2	13.8	32	
(raw score)	3	26	28.8	11.2	27	
	5	22	32.5	13.5	35	
Mathematics	1	16	40.8	18.6	28	
(raw score)	3	26	40.7	14.0	28	
	5	22	41.3	18.2	30	
Personality	1	17	84.5	22.2	20	1 vs 5
(raw score)	3	26	80.1	13.9	20	3 vs 5
(LSD=11.3)	5	22	96.0	20.7	30	
Physical	2	16	24.0	7.7	9	
Education	4	23	20.5	7.1	4	
(raw score)	6	21	27.0	11.7	15	
Pull-ups	1	32	2.6	3.0	51	1 vs 4
(number)	2	32	3.3	3.4	60	
(LSD=1.29)	3	44	2.3	2.5	48	3 vs 4
	4	41	4.0	2.9	70	
	5	30	2.3	2.0	48	
	6	28	1.9	2.4	44	
Sit-ups	1	32	13.8	12.2	8	1 vs 2,3,4,5,6
(number)	2	33	46.5	32.4	53	2 vs 4,6
(LSD=14.1)	3	44	33.0	22.7	39	3 vs 4,6
	4	41	71.2	34.9	78	
	5	29	42.7	35.1	51	5 vs 6
	6	28	71.3	36.1	78	
Shuttle Run	1	32	12.0	.91	20	1 vs 4,5,6
(seconds)	2	32	11.8	.69	30	2 vs 4,5,6
(LSD=.353)	3	44	12.1	.70	17	3 vs 4,5,6
	4	41	10.9	.68	67	
	5	30	11.4	.85	45	5 vs 6
	6	28	10.9	.66	67	

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Table 14. Fifth Grade Boys (Continued)

Test Item	Session	N	Mean	SD	%ile or T Points	Significant Difference
Standing	1	32	51.3	4.9	11	1 vs 2,4,6
Broad Jump	2	33	58.7	6.5	38	
(inches)	3	43	54.1	5.9	25	3 vs 4
(LSD=3.22)	4	41	59.5	6.1	44	
	5	29	52.7	8.4	18	
	6	28	55.8	8.7	28	
50-Yard Dash	1	32	9.01	1.36	20	1 vs 2,4
(seconds)	2	32	8.35	.61	42	
(LSD=.412)	3	44	8.65	.70	31	3 vs 4
	4	41	8.06	.49	57	
	5	30	9.21	1.08	14	5 vs 6
	6	28	8.64	.85	33	
Softball Throw	1	32	89	15.9	35	1 vs 2
(feet)	2	33	107	26.7	66	
(LSD=9.23)	3	42	85	15.8	31	
	4	41	95	20.0	48	
	5	30	80	15.4	24	
	6	28	87	19.9	33	
600 Yard	1	32	175	25.8	19	1 vs 3,4,6
Run-Walk	2	32	190[a]	35.0[a]	9[a]	2 vs 3,4,5,6
(seconds)	3	43	157	19.0	44	3 vs 4
(LSD=11.8)	4	41	141	16.3	68	
	5	30	170	31.4	24	5 vs 6
	6	28	148	18.0	63	
Overhand Throw	3	42	85.0	15.8	50	3 vs 4
(feet)	4	41	95.2	20.0	57	
(LSD=8.46)	5	30	80.4	15.4	47	
	6	28	86.8	19.9	51	
Wall-Pass	3	43	62.2	15.2	50	3 vs 6
(total hits)	4	40	58.3	18.0	47	4 vs 6
(LSD=6.82)	5	30	60.6	10.7	48	5 vs 6
	6	28	69.4	10.4	55	

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Table 14. Fifth Grade Boys (Continued)

Test Item	Session	N	Mean	SD	%ile or T Points	Significant Difference
Soccer Punt (feet) (LSD=6.20)	3	44	44.2	13.3	49	3 vs 4,6
	4	41	51.4	14.7	55	
	5	30	50.0	10.9	54	
	6	28	54.2	13.3	57	
Soccer Volley (total kicks) (LSD=6.54)	3	42	33.6	7.4	49	3 vs 4
	4	40	53.1	22.1	72	
	5	30	35.8	9.4	50	
	6	28	39.8	9.1	55	
Volleyball Serve (total feet) (LSD=24.2)	3	44	141	39.5	50	3 vs 4,6
	4	41	181	58.3	60	
	5	30	158	52.7	54	
	6	28	182	58.2	60	
Pitching Accuracy (total points) (LSD=5.92)	3	44	43.2	12.9	49	3 vs 4,5,6
	4	40	52.2	12.6	58	
	5	30	51.5	13.7	57	
	6	28	56.5	11.3	62	
Motor Skill Composite (totals from T-Scale) (LSD=24.2)	4	40	350	50		
	5	30	315	48		5 vs 6
	6	28	344	50		

[a]These scores are not valid as testing conditions were altered considerably due to construction at the school.

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Table 15. Fifth Grade Girls

Test Item	Session	N	Mean	SD	%ile or T Points	Significant Difference
Reading (raw score)	1	12	27.9	8.1	27	
	3	26	33.7	14.2	37	
	5	24	30.6	11.8	30	
Mathematics (raw score)	1	12	41.5	12.5	30	
	3	26	44.7	14.0	35	
	5	24	38.1	10.4	23	
Personality (raw score)	1	12	91.3	12.6	30	
	3	26	89.0	15.6	20	
	5	23	92.7	17.9	30	
Physical Education (raw score)	2	12	25.8	4.6	11	
	4	25	23.1	7.9	7	
	6	21	26.4	10.3	15	
Flexed-arm Hang (number) (LSD=4.22)	1	23	5.0	6.5	35	1 vs 5,6
	2	23	8.5	10.6	53	2 vs 6
	3	43	5.0	5.8	35	3 vs 5,6
	4	41	8.5	8.1	53	4 vs 6
	5	37	11.0	8.7	65	
	6	32	13.1	11.9	70	
Sit-ups (number) (LSD=6.31)	1	23	19.5	11.1	24	1 vs 4,5,6
	2	23	23.8	12.2	34	2 vs 4,5,6
	3	42	23.8	14.1	34	3 vs 4,5,6
	4	40	36.5	14.0	57	4 vs 6
	5	37	39.8	14.3	60	
	6	32	45.6	10.2	68	
Shuttle Run (seconds) (LSD=.398)	1	23	12.7	.99	22	1 vs 4,5,6
	2	23	12.6	.77	24	2 vs 4,5,6
	3	43	12.6	.81	25	3 vs 4,5,6
	4	41	11.5	.86	61	4 vs 6
	5	37	11.7	.82	54	5 vs 6
	6	32	10.9	.67	80	

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Table 15. Fifth Grade Girls (Continued)

Test Item	Session	N	Mean	SD	%ile or T Points	Significant Difference
Standing	1	23	48.6	7.4	21	1 vs 2,4,5,6
Broad Jump	2	23	53.5	7.0	42	
(inches)	3	43	49.4	6.0	23	3 vs 5,6
(LSD=3.40)	4	40	52.5	6.6	37	
	5	37	53.6	7.6	43	
	6	32	54.2	7.7	46	
50-Yard Dash	1	23	8.96	1.07	29	
(seconds)	2	23	8.89	.82	35	
	3	43	8.93	.69	32	
	4	41	8.62	1.00	45	
	5	37	9.11	.72	23	
	6	32	8.66	.77	45	
Softball Throw	1	23	55.9	15.5	62	1 vs 2
(feet)	2	23	63.5	15.8	73	
(LSD=7.27)	3	43	53.0	15.8	56	3 vs 4,6
	4	41	60.4	15.7	70	
	5	37	55.8	11.7	62	
	6	32	60.4	15.0	73	
600 Yard	1	23	184	28.2	29	1 vs 5,6
Run-Walk	2	23	236[a]	36.7[a]	4[a]	2 vs 3,4,5,6
(seconds)	3	43	179	23.1	36	3 vs 6
(LSD=12.8)	4	41	173	27.0	43	4 vs 6
	5	37	169	25.0	48	5 vs 6
	6	32	156	20.9	64	
Overhand Throw	3	43	53.0	15.8	50	
(feet)	4	41	60.4	15.7	54	
	5	37	55.8	11.7	51	
	6	32	60.4	15.0	54	
Wall-Pass	3	42	47.9	12.0	50	3 vs 4,5,6
(total hits)	4	41	59.2	12.5	58	4 vs 6
(LSD=5.33)	5	37	56.9	11.2	56	5 vs 6
	6	32	65.2	11.1	62	

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Table 15. Fifth Grade Girls (Continued)

Test Item	Session	N	Mean	SD	%ile or T Points	Significant Difference
Soccer Punt (feet) (LSD=5.47	3	41	26.0	11.7	48	3 vs 4,5,6
	4	41	33.4	13.8	54	
	5	37	34.6	10.9	55	
	6	32	33.1	11.4	54	
Soccer Volley (total kicks) (LSD=3.36)	3	41	23.9	7.1	49	3 vs 4,5,6
	4	41	30.2	8.1	55	4 vs 5,6
	5	36	37.8	7.1	63	5 vs 6
	6	32	42.5	7.2	68	
Volleyball Serve (total feet) (LSD=15.5)	3	42	108	29.5	49	3 vs 4,5,6
	4	41	130	42.0	54	
	5	37	128	26.5	54	
	6	32	133	37.0	55	
Pitching Accuracy (total points) (LSD=5.20)	3	41	31.9	10.3	48	3 vs 5,6
	4	41	36.3	11.4	52	4 vs 5,6
	5	37	43.2	11.7	58	5 vs 6
	6	32	55.9	12.9	68	
Motor Skill Composite (totals from T-Scale) (LSD=15.7)	4	41	329	34		4 vs 6
	5	36	336	29		5 vs 6
	6	32	362	37		

[a]These scores are not valid as testing conditions were altered considerably due to construction at the school.

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Table 16. Sixth Grade Boys

Test Item	Session	N	Mean	SD	%ile or T Points	Significant Difference
Reading	1	19	30.4	18.4	14	
(raw score)	3	25	39.9	18.8	30	
	5	25	36.6	15.6	23	
Mathematics	1	19	40.9	18.0	6	
(raw score)	3	25	55.0	25.4	20	
	5	25	50.5	19.9	17	
Personality	1	19	82.3	13.6	20	
(raw score)	3	24	83.8	15.0	20	
	5	25	92.9	22.3	30	
Physical	2	19	25.2	10.4	7	
Education	4	26	27.8	9.8	10	
(raw score)	6	23	31.3	9.9	18	
Pull-ups	1	35	2.9	2.7	59	
(number)	2	34	3.5	2.8	65	
(LSD=1.07)	3	41	2.0	1.9	44	3 vs 4
	4	41	3.7	2.2	67	
	5	39	2.2	2.1	47	
	6	37	2.2	2.4	47	
Sit-ups	1	35	17.4	11.4	10	1 vs 2,3,4,5,6
(number)	2	35	51.2	34.9	57	2 vs 4
(LSD=13.2)	3	42	31.4	22.7	35	3 vs 4,6
	4	41	73.1	34.3	75	
	5	39	39.0	30.6	44	5 vs 6
	6	37	60.6	33.6	62	
Shuttle Run	1	35	11.8	1.00	25	1 vs 4,5,6
(seconds)	2	35	11.5	.98	33	2 vs 4,5,6
(LSD=.374)	3	42	12.1	.92	17	3 vs 4,5,6
	4	41	10.7	.65	70	
	5	39	10.9	.74	65	5 vs 6
	6	37	10.5	.61	75	

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Table 16. Sixth Grade Boys (Continued)

Test Item	Session	N	Mean	SD	%ile or T Points	Significant Difference
Standing	1	35	53.4	7.8	16	1 vs 2,4,5,6
Broad Jump	2	35	62.1	8.9	50	
(inches)	3	42	54.2	5.8	18	3 vs 4,5,6
(LSD=3.50)	4	41	58.6	6.9	32	4 vs 6
	5	39	59.0	8.3	35	5 vs 6
	6	37	63.5	8.6	58	
50-Yard Dash	1	35	8.31	1.21	35	
(seconds)	2	34	8.09	.82	40	
(LSD=.365)	3	42	8.55	.64	23	3 vs 4
	4	41	8.01	.69	44	
	5	39	8.54	.66	23	
	6	37	8.29	.75	36	
Softball Throw	1	35	102	17.4	36	1 vs 2
(feet)	2	35	117	16.5	61	
(LSD=9.46)	3	42	91	21.7	21	3 vs 4,6
	4	42	103	27.5	38	
	5	39	94	17.5	24	
	6	37	102	21.6	36	
600-Yard	1	35	155	18.3	35	1 vs 6
Run-Walk	2	34	194[a]	28.4[a]	8[a]	2 vs 3,4,5,6
(seconds)	3	42	164	29.8	23	3 vs 4,5,6
(LSD=10.5)	4	40	145	21.5	54	
	5	39	150	21.2	45	
	6	37	141	17.0	60	
Overhand Throw	3	40	88.8	18.8	47	3 vs 4,6
(feet)	4	42	103.3	27.5	58	
(LSD=9.64)	5	39	94.1	17.5	51	
	6	37	102.2	21.6	57	
Wall-Pass	3	39	69.2	14.0	51	3 vs 6
(total hits)	4	41	66.6	21.7	50	4 vs 5,6
(LSD=7.05)	5	39	74.9	12.2	55	5 vs 6
	6	37	82.2	12.8	60	

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Table 16. Sixth Grade Boys (Continued)

Test Item	Session	N	Mean	SD	%ile or T Points	Significant Difference
Soccer Punt (feet) (LSD=6.36)	3	40	50.8	13.1	50	3 vs 4,5,6
	4	42	61.2	15.6	57	
	5	39	59.4	11.5	56	
	6	37	63.9	16.9	59	
Soccer Volley (total kicks) (LSD=5.22)	3	39	37.2	10.9	51	3 vs 4,6
	4	41	58.7	16.8	72	
	5	39	39.4	8.2	53	5 vs 6
	6	37	45.9	8.1	59	
Volleyball Serve (total feet) (LSD=25.4)	3	40	172	47.2	50	3 vs 4,6
	4	42	220	70.3	61	
	5	39	175	57.3	51	5 vs 6
	6	37	205	51.5	57	
Pitching Accuracy (total score) (LSD=5.32)	3	40	49.0	14.2	49	3 vs 4,5,6
	4	42	58.1	12.1	56	
	5	39	58.6	11.0	58	
	6	37	63.3	10.4	61	
Motor Skill Composite (totals from T-Scale) (LSD=23.1)	4	41	352	57		
	5	39	324	43		
	6	37	343	53		

[a]These scores are not valid as testing conditions were altered considerably due to construction at the school.

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Table 17. Sixth Grade Girls

Test Item	Session	N	Mean	SD	%ile or T Points	Significant Difference
Reading (raw score)	1	8	42.4	21.3	34	
	3	25	35.7	16.3	23	
	5	23	40.1	16.2	30	
Mathematics (raw score)	1	8	54.0	21.1	20	
	3	25	51.3	23.3	17	
	5	23	52.9	21.9	19	
Personality (raw score)	1	8	94.5	21.7	30	
	3	25	95.2	18.1	30	
	5	23	98.9	21.4	30	
Physical Education (raw score)	2	8	29.5	9.4	12	
	4	23	28.2	9.1	10	
	6	21	32.4	8.4	21	
Flexed-Arm Hang (seconds)	1	19	6.3	5.8	46	
	2	19	10.1	9.8	60	
	3	37	6.2	6.4	45	
	4	36	9.7	10.8	58	
	5	38	6.1	5.9	45	
	6	34	9.0	9.2	55	
Sit-ups (number) (LSD=7.12)	1	19	26.1	11.3	40	1 vs 4,6
	2	19	31.9	15.2	52	2 vs 4
	3	37	33.0	14.9	53	
	4	36	39.4	11.4	64	
	5	38	28.1	15.6	44	5 vs 6
	6	33	35.9	14.3	58	
Shuttle Run (seconds) (LSD=.331)	1	19	12.3	1.01	26	1 vs 2,4,5,6
	2	19	11.5	.65	58	2 vs 4,6
	3	37	12.1	.67	31	3 vs 4,5,6
	4	36	10.9	.59	80	
	5	38	11.5	.60	58	5 vs 6
	6	34	10.9	.55	80	

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Table 17. Sixth Grade Girls (Continued)

Test Item	Session	N	Mean	SD	%ile or T Points	Significant Difference
Standing	1	19	47.7	5.6	11	1 vs 2,3,4,5,6
Broad Jump	2	19	57.1	7.4	45	
(inches)	3	37	51.8	6.4	23	3 vs 4,6
(LSD=3.48)	4	36	57.1	7.2	45	
	5	38	52.9	7.4	27	5 vs 6
	6	34	56.8	7.1	43	
50-Yard Dash	1	18	8.58	.73	40	1 vs 2,4
(seconds)	2	19	8.13	.69	58	
(LSD=.395)	3	37	8.83	.79	28	3 vs 4
	4	36	8.11	.66	64	
	5	38	8.81	.77	30	
	6	34	8.49	.93	46	
Softball Throw	1	19	63	16.0	56	
(feet)	2	19	72	22.1	72	
	3	37	65	17.8	61	
	4	36	75	23.1	77	
	5	38	70	16.5	69	
	6	34	74	17.8	75	
600-Yard	1	19	190	33.5	30	1 vs 4,5,6
Run-Walk	2	19	200[a]	28.3[a]	21[a]	2 vs 3,4,5,6
(seconds)	3	37	184	28.0	35	3 vs 4,6
(LSD=12.9)	4	36	164	17.1	58	
	5	37	176	22.7	43	5 vs 6
	6	34	163	25.8	59	
Overhand Throw	3	37	64.6	17.8	51	
(feet)	4	36	75.3	23.2	57	
	5	38	69.5	16.5	54	
	6	34	74.1	17.8	56	
Wall-Pass	3	37	60.6	17.5	50	3 vs 6
(total hits)	4	36	55.1	21.8	46	4 vs 5,6
(LSD=7.30)	5	38	66.5	10.3	53	
	6	34	70.8	9.7	55	

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Table 17. Sixth Grade Girls (Continued)

Test Item	Session	N	Mean	SD	%ile or T Points	Significant Difference
Soccer Punt (feet) (LSD=6.84)	3	37	36.7	11.4	51	3 vs 6
	4	36	42.4	18.6	55	
	5	38	40.0	14.3	53	
	6	34	46.3	13.5	58	
Soccer Volley (total kicks) (LSD=5.73)	3	37	27.2	8.6	49	3 vs 4,5,6
	4	36	46.7	19.8	69	
	5	38	36.1	8.4	58	5 vs 6
	6	34	42.7	8.4	64	
Volleyball Serve (total feet) (LSD=20.8)	3	37	137	42.7	51	3 vs 4,6
	4	36	163	57.0	56	
	5	38	149	39.0	53	5 vs 6
	6	34	170	37.6	58	
Pitching Accuracy (total points) (LSD=5.86)	3	37	39.9	10.6	51	3 vs 5,6
	4	36	41.7	15.2	52	4 vs 5,6
	5	38	50.3	11.8	59	5 vs 6
	6	34	62.9	12.3	69	
Motor Skill Composite (totals from T-Scale) (LSD=19.0)	4	36	333	47		4 vs 6
	5	38	330	35		5 vs 6
	6	34	358	39		

[a]These scores are not valid as testing conditions were altered considerably due to construction at the school.

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Table 18. Seventh Grade Boys

Test Item	Session	N	Mean	SD	%ile or T Points	Significant Difference
Reading (raw score)	1	19	46.0	17.6	28	
	3	26	40.5	22.1	18	
Mathematics (raw score)	1	19	63.5	24.1	15	
	3	26	58.2	26.8	9	
Personality (raw score)	1	19	92.9	19.3	30	
	3	25	89.4	21.7	20	
Physical Education (raw score)	2	19	24.2	7.2	22	
	4	25	20.4	7.7	11	
Pull-ups (number) (LSD=1.28)	1	35	2.3	2.4	48	1 vs 2,4
	2	34	3.7	3.4	65	
	3	46	2.3	2.5	48	3 vs 4,6
	4	44	4.2	3.2	71	
Sit-ups (number) (LSD=13.1)	1	35	21.2	13.4	11	1 vs 2,3,4
	2	34	62.0	33.1	61	
	3	46	38.5	30.2	33	3 vs 4
	4	45	68.6	35.1	64	
Shuttle Run (seconds) (LSD=.310)	1	34	11.5	.82	28	1 vs 4
	2	34	11.3	.76	35	2 vs 4
	3	46	11.8	.68	22	3 vs 4
	4	45	10.5	.56	68	
Standing Broad Jump (inches) (LSD=3.27)	1	35	58.5	6.8	21	1 vs 2,4
	2	34	70.9	7.3	69	
	3	46	58.2	7.0	20	3 vs 4
	4	45	63.6	8.3	38	
50-Yard Dash (seconds) (LSD=.364)	1	34	8.32	1.04	24	1 vs 2,4
	2	33	7.76	.67	52	
	3	45	8.51	.83	17	3 vs 4
	4	45	7.77	.70	51	

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Table 18. Seventh Grade Boys (Continued)

Test Item	Session	N	Mean	SD	%ile or T Points	Significant Difference
Softball	1	35	116	22.0	41	1 vs 2
Throw	2	34	136	28.9	69	
(feet)	3	45	108	23.9	26	3 vs 4
(LSD=11.2)	4	45	124	26.2	54	
600 Yard	1	34	149	27.0	36	1 vs 4
Run-Walk	2	33	169[a]	23.9[a]	18[a]	2 vs 3,4
(seconds)	3	45	151	20.2	33	
(LSD=10.0)	4	45	137	19.5	55	

[a]These scores are not valid as testing conditions were altered considerably due to construction at the school.

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Table 19. Seventh Grade Girls

Test Item	Session	N	Mean	SD	%ile or T Points	Significant Difference
Reading (raw score)	1	13	48.8	24.8	30	
	3	21	50.8	24.2	33	
Mathematics (raw score)	1	13	71.5	28.6	23	
	3	21	68.7	31.5	21	
Personality (raw score)	1	13	98.5	21.4	30	
	3	21	102.4	18.9	35	
Physical Education (raw score)	2	13	24.5	8.3	26	
	4	21	22.8	8.6	19	
Flexed-arm Hang (seconds)	1	25	6.4	5.3	48	
	2	24	10.2	11.6	65	
	3	32	6.6	8.7	50	
	4	32	11.2	10.5	70	
Sit-ups (number) (LSD=7.28)	1	25	24.4	10.8	33	1 vs 4
	2	24	29.2	15.0	43	2 vs 4
	3	32	29.4	15.8	44	3 vs 4
	4	32	40.6	12.5	65	
Shuttle Run (seconds) (LSD=.410)	1	25	12.6	.87	19	1 vs 2,4
	2	24	12.0	.82	33	2 vs 4
	3	32	12.3	.77	24	3 vs 4
	4	32	10.8	.66	80	
Standing Broad Jump (inches) (LSD=4.02)	1	24	48.1	7.7	10	1 vs 2,3,4
	2	24	59.9	8.2	49	
	3	32	52.7	7.1	23	3 vs 4
	4	32	59.0	7.5	44	
50-Yard Dash (seconds) (LSD=.426)	1	25	8.92	1.15	24	1 vs 2,4
	2	24	8.39	.53	40	2 vs 4
	3	32	8.49	.79	35	3 vs 4
	4	32	7.92	.64	68	

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Table 19. Seventh Grade Girls (Continued)

Test Item	Session	N	Mean	SD	%ile or T Points	Significant Difference
Softball	1	25	70	21.7	59	1 vs 2
Throw	2	24	85	24.8	79	
(feet)	3	32	70	21.9	59	
(LSD=11.8)	4	32	79	21.1	73	
600 Yard	1	25	179	26.6	39	1 vs 4
Run-Walk	2	24	196[a]	31.1[a]	21[a]	2 vs 3,4
(seconds)	3	32	178	30.0	40	3 vs 4
(LSD=14.9)	4	32	159	25.0	64	

[a]These scores are not valid as testing conditions were altered considerably due to construction at the school.

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Table 20. Eighth Grade Boys

Test Item	Session	N	Mean	SD	%ile or T Points	Significant Difference
Reading (raw score)	1	15	38.1	17.7	9	
	3	27	42.6	18.3	13	
Mathematics (raw score)	1	15	54.5	21.9	3	
	3	27	57.6	26.6	4	
Personality (raw score)	1	15	88.3	21.2	20	
	3	26	85.8	18.9	20	
Physical Education (raw score)	2	15	20.5	5.7	7	
	4	30	18.8	7.5	5	
Pull-ups (number) (LSD=1.30)	1	29	2.0	2.1	35	1 vs 2,4
	2	28	3.9	3.4	53	
	3	49	2.3	2.2	38	3 vs 4
	4	53	4.8	3.6	63	
Sit-ups (number) (LSD=13.2)	1	29	36.9	22.8	21	1 vs 2,4
	2	27	66.9	32.2	53	
	3	49	44.3	30.3	31	3 vs 4
	4	53	73.8	31.4	59	
Shuttle Run (seconds) (LSD=.370)	1	29	11.3	.95	24	1 vs 4
	2	28	11.5	.82	21	2 vs 4
	3	49	11.6	1.01	18	3 vs 4
	4	53	10.2	.56	72	
Standing Broad Jump (inches) (LSD=4.39)	1	29	59.4	10.4	14	1 vs 2,4
	2	28	70.7	11.0	53	
	3	49	61.2	7.5	18	3 vs 4
	4	53	71.0	11.0	54	
50-Yard Dash (seconds) (LSD=.378)	1	29	8.29	1.21	12	1 vs 2,4
	2	28	7.57	.71	41	
	3	49	8.03	.70	19	3 vs 4
	4	53	7.31	.83	59	

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Table 20. Eighth Grade Boys (Continued)

Test Item	Session	N	Mean	SD	%ile or T Points	Significant Difference
Softball	1	29	125	29.9	30	1 vs 2,4
Throw	2	28	152	32.8	64	
(feet)	3	49	130	26.5	38	3 vs 4
(LSD=13.2)	4	53	147	32.0	60	
600 Yard	1	29	146	25.0	24	1 vs 4
Run-Walk	2	28	169[a]	26.0[a]	8[a]	2 vs 3,4
(seconds)	3	49	144	23.8	26	3 vs 4
(LSD=11.0)	4	53	131	25.3	47	

[a]These scores are not valid as testing conditions were altered considerably due to construction at the school.

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Table 21. Eighth Grade Girls

Test Item	Session	N	Mean	SD	%ile or T Points	Significant Difference
Reading (raw score)	1	11	43.5	23.1	15	
	3	28	53.1	21.7	27	
Mathematics (raw score)	1	11	63.0	31.0	6	
	3	28	69.6	28.8	10	
Personality (raw score)	1	11	95.2	22.2	29	
	3	28	102.1	20.0	35	
Physical Education (raw score)	2	10	20.5	6.5	7	
	4	27	24.8	9.8	17	
Flexed-arm Hang (seconds)	1	21	5.1	5.8	40	
	2	21	8.4	10.6	56	
	3	44	9.6	12.7	63	
	4	42	10.9	12.0	67	
Sit-ups (number) (LSD=6.41)	1	21	19.8	10.8	24	1 vs 2,3,4
	2	21	27.9	13.8	41	2 vs 4
	3	44	28.0	13.5	41	3 vs 4
	4	40	35.6	12.8	56	
Shuttle Run (seconds) (LSD=.429)	1	21	12.7	1.22	18	1 vs 2,4
	2	21	11.5	1.02	48	2 vs 4
	3	44	12.1	.77	28	3 vs 4
	4	41	10.9	.64	70	
Standing Broad Jump (inches) (LSD=4.36)	1	21	51.5	9.9	18	1 vs 2
	2	21	64.3	9.5	66	
	3	44	51.5	8.3	18	
	4	40	55.2	8.4	31	
50-Yard Dash (seconds)	1	21	8.50	1.02	35	
	2	21	8.25	.89	43	
	3	44	8.52	.74	34	
	4	41	8.06	.77	52	

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Table 21. Eighth Grade Girls (Continued)

Test Item	Session	N	Mean	SD	%ile or T Points	Significant Difference
Softball	1	21	74	19.3	56	1 vs 2
Throw	2	21	95	38.9	85	
(feet)	3	44	71	21.1	51	
(LSD=12.2)	4	42	74	21.5	56	
600 Yard	1	21	169	27.2	53	
Run-Walk	2	21	206[a]	38.5[a]	16[a]	2 vs 3,4
(seconds)	3	44	187	30.6	31	3 vs 4
(LSD=14.8)	4	40	165	24.9	58	

[a]These scores are not valid as testing conditions were altered considerably due to construction at the school.

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Analysis of Correlations — Correlation coefficients between the written test scores and the physical performance test scores were obtained. Physical fitness and motor skill scores from the pre-test of 1971-72 were correlated with the SRA Reading and Mathematics scores and the California Test of Personality scores obtained later in the same semester. Correlations were computed between the AAHPER Cooperative Test (knowledge and understanding in physical education) scores obtained in April of 1972 and the post-test scores for physical fitness and motor skill of 1971-72.

The statistical analysis of the relationship of personality scores with each of the fitness and skill test variables for boys and girls in grades one through eight yielded 178 coefficient of correlation. Fewer than eight per cent of the coefficients were statistically significant.

Similar computations for the relationship of mathematics and reading achievement with fitness and skill yielded only nineteen significant coefficients of correlations from the 260 computed.

The calculation of 112 coefficients of correlation between physical education knowledge and understanding results and fitness and skill test scores resulted in only eleven statistically significant correlation coefficients.

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Since no trends could be detected and due to the lack of significance of the correlations, the tables have not been presented in this report.

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SUMMARY AND CONCLUSIONS

Students in the Project HOPE sample demonstrated sizable and statistically significant (P=.05, gains in physical fitness as measured by the Washington State Elementary School Fitness Test and the AAHPER Youth Fitness Test. Improvement was similar for the two sexes and was noted throughout the eight grades. Virtually all differences between the initial fall testing in Year I and the post-test scores in Year II and Year III were statistically significant. The majority of the gains within Year I, Year II and Year III were also significant.

Sample students in grades one through six showed a definite pattern of statistically significant improvement in motor skill as reflected in their scores on the Minnesota Motor Performance Test.

With only a few exceptions, the sample students did not improve significantly their scores on the California Test of Personality, the SRA Reading and Mathematics Achievement Tests, or the AAHPER Cooperative Test of knowledge and understanding in physical education. In the majority of cases, improvement was noted from Year II to Year III although those gains were rarely statistically significant.

Only forty-four of the 550 coefficients of correlation

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computed to analyze the relationships between the written test variables with the physical performance variables were statistically significant. No significant pattern of relationship was established.

The amount, frequency and statistical significance of the gains by sample students in Project HOPE in the areas of physical fitness and motor skill are substantial enough to warrant the conclusion that the program of Project HOPE was the most significant factor in those gains. Maturation and the extra-curricular activities of the students were additional factors to be considered. However, the gains in physical fitness and motor skill were of far greater import than could normally be attributed to these factors.

The increase in scores on the AAHPER Cooperative Test of knowledge and understanding in physical education was not statistically significant in the majority of instances, however, there was a consistent pattern of improvement. While it is difficult to quantify the impact of Project HOPE in this area, it is reasonable to expect that any gains which did occur were the result of the physical education program.

No statistically significant improvements were noted on the SRA Reading Achievement and the SRA Arithmetic Achievement tests. Only four cases of statistically significant

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improvement were noted in scores on total adjustment in the California Test of Personality. One would expect that it would take a longer period of time for any program to achieve a significantly measurable impact upon these variables. Other studies designed for a longer period and with a longitudinal approach to evaluation have shown gains in academic achievement and self-concept which paralleled improvements in physical fitness and motor skill. Project HOPE may have had a similar impact on its students, however, the changes were not notably measurable at this time.

The interrelationships of personality, self-concept and academic achievement with physical fitness and motor skill have been demonstrated in some studies. Definite relationships could not be established in these areas through the measurements in this study.